

1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(10 - 3i)(8 - 9i)$$

- A. $a \in [103, 114]$ and $b \in [-71, -59]$
- B. $a \in [75, 82]$ and $b \in [22, 30]$
- C. $a \in [103, 114]$ and $b \in [66, 68]$
- D. $a \in [50, 58]$ and $b \in [-115, -111]$
- E. $a \in [50, 58]$ and $b \in [114, 116]$

2. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{54 - 22i}{5 + 4i}$$

- A. $a \in [10.5, 11]$ and $b \in [-6, -5]$
- B. $a \in [4, 5]$ and $b \in [-9, -7]$
- C. $a \in [4, 5]$ and $b \in [-327, -325.5]$
- D. $a \in [181, 183]$ and $b \in [-9, -7]$
- E. $a \in [8, 10]$ and $b \in [1.5, 3.5]$

3. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{484}{169}}$$

- A. Not a Real number
- B. Rational
- C. Integer
- D. Irrational

E. Whole

4. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 2^2 + 10 \div 8 * 14 \div 20$$

- A. $[12.54, 13.05]$
 - B. $[13.09, 14.05]$
 - C. $[5.54, 5.99]$
 - D. $[4.75, 5.51]$
 - E. None of the above
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5. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{144}{625}}$$

- A. Integer
 - B. Irrational
 - C. Not a Real number
 - D. Whole
 - E. Rational
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6. Simplify the expression below and choose the interval the simplification is contained within.

$$2 - 10^2 + 12 \div 18 * 16 \div 9$$

- A. $[101.69, 103.16]$
- B. $[102.58, 103.51]$
- C. $[-98.17, -97.88]$

- D. $[-97.84, -95.36]$
- E. None of the above

7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-2 + 6i)(-3 - 4i)$$

- A. $a \in [-18, -17]$ and $b \in [-27.7, -25.5]$
- B. $a \in [30, 38]$ and $b \in [-11.3, -7.5]$
- C. $a \in [30, 38]$ and $b \in [8.5, 13.4]$
- D. $a \in [-18, -17]$ and $b \in [24.7, 27.8]$
- E. $a \in [6, 9]$ and $b \in [-25.9, -21.2]$

8. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1820}{10}} + 10i^2$$

- A. Irrational
- B. Pure Imaginary
- C. Rational
- D. Nonreal Complex
- E. Not a Complex Number

9. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{45 + 44i}{-6 + 8i}$$

- A. $a \in [-6.5, -4.5]$ and $b \in [-1, 1.5]$

- B. $a \in [-8, -7]$ and $b \in [4.5, 6.5]$
 - C. $a \in [81.5, 83]$ and $b \in [-7, -5.5]$
 - D. $a \in [-1, 1.5]$ and $b \in [-7, -5.5]$
 - E. $a \in [-1, 1.5]$ and $b \in [-625.5, -622.5]$
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10. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{36}{0}} + \sqrt{238}i$$

- A. Nonreal Complex
 - B. Rational
 - C. Irrational
 - D. Not a Complex Number
 - E. Pure Imaginary
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